IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	Atty. Docket
SRINIVAS GUTTA ET AL.	US 010567
	Confirmation No. 2684
Serial No. 10/014,180	Group Art Unit: 2164
Filed: NOVEMBER 13, 2001	Examiner: WONG, LESLIE

Title: METHOD AND APPARATUS FOR EVALUATING THE CLOSENESS OF ITEMS IN A RECOMMENDER OF SUCH ITEMS

Mail Stop Appeal Brief-Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPLICANTS' REPLY BRIEF

Sir:

In response to the Examiner's Answer mailed on September 5, 2006, please consider the following remarks:

REMARKS

The following remarks are being filed in response to the Examiner's Answer mailed on September 5, 2006, which has been reviewed and carefully considered. Reconsideration and allowance of the present application in view of the following remarks and arguments are respectfully requested.

Appellants maintain the arguments submitted in the Appeal Brief mailed on February 9, 2005, which are incorporated herein by reference and refute the allegations made in the Examiner's Answer. In particular, Appellants respectfully refute the allegation that the serendipity control value of U.S. 6,334,127 (Bieganski) is equal to the distance between corresponding symbolic feature values, as recited in independent claims 1, 10 and 19-23. Rather, the serendipity control value is the result of applying the serendipity control function to the community popularity value, where the serendipity control function relates the community popularity to a probability value, as specifically recited on column 9, lines 46-57:

The result of applying the serendipity

> control function to the community popularity value is the production of a serendipity control value for the item, which is a real-numbered value between 0 and 1, with 1 indicating that the item has met the serendipity requirements of the serendipity control function perfectly, and a 0 indicating that the item does not meet the serendipity requirements of the serendipity control function.
>
> The serendipity control function may be any general mathematical function that relates the community popularity, f_p, of an item to a probability value, w, where $0<=w<=1$. (Emphasis added)

Assuming, arguendo, that the distance between corresponding symbolic feature values is equal to serendipity control value, Appellants further respectfully refute the allegation on page 9, last paragraph of the Examiner's Answer that the following description teaches or suggests the present invention as recited in independent claims 1, 10 and 19-23:

> Bieganski teaches the claim limitation "Aggregating or adding distances" as once the serendipity control value has been received or calculated, the serendipity-weighted and filtered recommendation with the serendipity control value, at step 1306, in this case by *multiplying the recommendation value by the serendipity control value*, then it is ***added*** *to the set of serendipity weighted* and filtered recommendations, at step 1308 (col. 14, lines 43-49).

It is respectfully submitted that the present invention as recited in independent claim 1, and similarly recited in independent claims 10 and 19-23 10 and 19-23, requires (illustrative emphasis provided):

> computing a distance ...; and
> **aggregating the distances** between each of said symbolic feature values **to determine the closeness of said two items**.

Aggregating distances between each of said symbolic feature values to determine the closeness of two items, as recited in independent claims 1, 10 and 19-23 is nowhere taught or suggested in Bieganski. Rather, Bieganski specifically recites on column 14, lines 43-49 (which is also paraphrased on page 9, last paragraph of the Examiner's Answer and reproduced above):

> Once the serendipity control value has been received or calculated, the **serendipity-weighted and filtered recommendation is produced** by integrating the item recommendation with the serendipity control value, at step 1306, in this case **by multiplying** the recommendation value by the serendipity control value, **and then it is added to the set** of serendipity-weighted and filtered recommendations, at step 1308. (Emphasis added)

As clearly described in the above noted section and shown in FIG 13, step 1308, the serendipity-weighted recommendation (which

is computed by multiplication) is added to the "recommendation list." (FIG 13, step 1308) That is, any adding in Bieganski is not "to determine the closeness of said two items" as specifically recited in independent claims 1, 10 and 19-23 10 and 19-23. Rather, the 'adding' in Bieganski is merely to add a recommendation to the recommendation list, and not to compute or add any distances.

Based at least on the arguments presented above, it is respectfully submitted that independent claims 1, 10 and 19-23 are allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that claims 2-9 and 11-18 should also be allowed at least based on their dependence from independent claims 1 and 10.

In addition, Appellants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Appellants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of

the Examiner's statements are conceded.

It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required for entrance of the accompanying Reply Brief, they may be charged to applicants' representatives Deposit Account No. 50-3649. In addition, please credit any overpayments related to any fees paid in connection with the accompanying amendment to Deposit Account No. 50-3649.

In view of the above, it is respectfully submitted that the present application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

By _____
Dicran Halajian, Reg. 39,703
Attorney for Applicant(s)
October 27, 2006

Appendix: Claims 1-23

THORNE & HALAJIAN, LLP
Applied Technology Center
111 West Main Street
Bay Shore, NY 11706
Tel: (631) 665-5139
Fax: (631) 665-5101

THE CLAIMS ON APPEAL

1.(Previously Presented) A method for use in a recommender for evaluating the closeness of two items, each of said items characterized by at least one symbolic feature, said method comprising the steps of:

computing a distance between corresponding symbolic feature values of said two items based on an overall similarity of classification of all instances for each possible value of said symbolic feature values; and

aggregating the distances between each of said symbolic feature values to determine the closeness of said two items.

2.(Original) The method of claim 1, wherein said computing step employs a Value Difference Metric (VDM) technique to compute said distance between symbolic features.

3.(Original) The method of claim 1, wherein said computing step employs a modified Value Difference Metric (MVDM) technique to compute said distance between symbolic features.

4.(Original) The method of claim 1, wherein said distance, δ, between two values, V1 and V2, for a specific symbolic feature is given by:

$$\delta(V1, V2) = \sum | C1i/C1 - C2i/C2|^r$$

wherein C1i is the number of times V1 was classified into class i and C1 is the total number of times V1 occurred in the data set.

5.(Original) The method of claim 1, wherein said items are programs, classes of interest are "watched" and not-watched" and wherein said distance, δ, between two values, V1 and V2, for a specific symbolic feature is given by:

$$\delta(V1, V2) = \left|\frac{C1\_watched}{C1\_total} - \frac{C2\_watched}{C2\_total}\right| + \left|\frac{C1\_not\_watched}{C1\_total} - \frac{C2\_not\_watched}{C2\_total}\right|$$

wherein C1i is the number of times V1 was classified into class i and C1_total is the total number of times V1 occurred in the data set.

6.(Original) The method of claim 1, wherein one of said items is a cluster mean.

7.(Original) The method of claim 1, wherein said items are programs.

8.(Original) The method of claim 1, wherein said items are content.

9.(Original) The method of claim 1, wherein said items are products.

10.(Original) A method for assigning an item to one or more groups of items, each of said items characterized by at least one symbolic feature, said method comprising the steps of:

computing a distance between corresponding symbolic feature values of said item and at least one item in each of said groups, said distance based on an overall similarity of classification of all instances for each possible value of said symbolic feature values;

aggregating the distances between each of said features values to determine the closeness of said item and at least one item in each of said groups; and

assigning said item to said group associated with a minimum distance value.

11.(Original) The method of claim 10, wherein said computing step employs a Value Difference Metric (VDM) technique to compute said distance between symbolic features.

12.(Original) The method of claim 10, wherein said computing step employs a modified Value Difference Metric (MVDM) technique to compute said distance between symbolic features.

13.(Original) The method of claim 10, wherein said distance, δ, between two values, V1 and V2, for a specific symbolic feature is given by:

$$\delta(V1, V2) = \sum | C1i/C1 - C2i/C2|^r$$

wherein C1i is the number of times V1 was classified into class i and C1 is the total number of times V1 occurred in the data set.

14.(Original) The method of claim 10, wherein said items are programs, classes of interest are "watched" and not-watched" and wherein said distance, δ, between two values, V1 and V2, for a specific symbolic feature is given by:

$$\delta(V1, V2) = \left| \frac{C1\_watched}{C1\_total} - \frac{C2\_watched}{C2\_total} \right| + \left| \frac{C1\_not\_watched}{C1\_total} - \frac{C2\_not\_watched}{C2\_total} \right|$$

wherein C1i is the number of times V1 was classified into class i and C1_total is the total number of times V1 occurred in the data set.

15.(Original) The method of claim 10, wherein one of said items is a cluster mean.

16.(Original) The method of claim 10, wherein said items are programs.

17.(Original) The method of claim 10, wherein said items are content.

18.(Original) The method of claim 10, wherein said items are products.

19.(Original) A system for use in a recommender for evaluating the closeness of two items, each of said items characterized by at least one symbolic feature, comprising:

a memory for storing computer readable code; and

a processor operatively coupled to said memory, said processor configured to:

compute a distance between corresponding symbolic feature values of said two items based on an overall similarity of classification of all instances for each possible value of said symbolic feature values; and

aggregate the distances between each of said symbolic features values to determine the closeness of said two items.

20.(Original) A system for use in a recommender for evaluating the closeness of two items, each of said items characterized by at least one symbolic feature, comprising:

means for computing a distance between corresponding symbolic feature values of said two items based on an overall similarity of classification of all instances for each possible value of said symbolic feature values; and

means for aggregating the distances between each of said symbolic features values to determine the closeness of said two items.

21.(Original) An article of manufacture for use with a recommender for evaluating the closeness of two items, each of said items characterized by at least one symbolic feature, comprising:

a computer readable medium having computer readable code means embodied thereon, said computer readable program code means comprising:

a step to compute a distance between corresponding symbolic feature values of said two items based on an overall similarity of

classification of all instances for each possible value of said symbolic feature values; and

a step to aggregate the distances between each of said symbolic features values to determine the closeness of said two items.

22.(Original) A system for assigning an item to one or more groups of items, each of said items characterized by at least one symbolic feature, comprising:

a memory for storing computer readable code; and

a processor operatively coupled to said memory, said processor configured to:

compute a distance between corresponding symbolic feature values of said item and at least one item in each of said groups, said distance based on an overall similarity of classification of all instances for each possible value of said symbolic feature values;

aggregate the distances between each of said features values to determine the closeness of said item and at least one item in each of said groups; and

assign said item to said group associated with a minimum distance value.

23.(Original) An article of manufacture for assigning an item to one or more groups of items, each of said items characterized by at least one symbolic feature, comprising:

a computer readable medium having computer readable code means embodied thereon, said computer readable program code means comprising:

a step to compute a distance between corresponding symbolic feature values of said item and at least one item in each of said groups, said distance based on an overall similarity of classification of all instances for each possible value of said symbolic feature values;

a step to aggregate the distances between each of said features values to determine the closeness of said item and at least one item in each of said groups; and

a step to assign said item to said group associated with a minimum distance value.